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New Department of Health Recommendations for Additional Tuberculosis and HIV Screening of Sub-Saharan African Immigrants/Refugees

The Centers for Disease Control and Prevention (CDC) recently identified the need for additional tuberculosis (TB) and HIV screening in refugees and immigrants coming to the United States from certain countries in sub-Saharan Africa. CDC reported "serious deficiencies" in the overseas immigrant/refugee medical screening process in some sub-Saharan African nations. CDC has also received reports from several state health departments that refugees from some of these countries have entered the United States with medical conditions—such as infectious TB and HIV infection—that had not been recognized and documented in the overseas screening process.

In Missouri, approximately 3,000 refugees and 6,000 immigrants arrive each year from throughout the world, including persons from sub-Saharan Africa. Although the annual number of sub-Saharan Africans coming into Missouri appears to be relatively small, the problems found in the overseas screening process underscore the need to provide additional medical assistance to these individuals. Consequently, until further notice, the Missouri Department of Health (MDOH) strongly recommends the following:

- Medically evaluate, as soon as possible after their arrival, all refugees and immigrants from Botswana,

Cameroon, Democratic Republic of the Congo, Mali, Mozambique, The Gambia, Uganda, and Zambia. This process should include evaluation for signs and symptoms of TB along with a Mantoux tuberculin skin test.

- Review the chest X-rays of all refugees and immigrants from Botswana, Cameroon, Democratic Republic of the Congo, Mali, Mozambique, The Gambia, and Uganda, and repeat those of substandard quality.
- Provide HIV counseling, and strongly recommend voluntary HIV testing, to all refugees and immigrants from Botswana, Cameroon, Democratic Republic of the Congo, Mali, Mozambique, The Gambia, Uganda, and Zambia. Additional considerations are the following:
 - It is important to try to ensure that any child (14 years of age or younger) who has an HIV-infected parent, or who is sexually active, is tested for HIV infection.
 - All pregnant women should routinely be offered HIV testing.
 - It is prudent to test any adult refugee or immigrant for HIV antibodies prior to administration of a live vaccine.
- All HIV-infected refugees and immigrants should, as part of their medical

evaluation, have a new chest X-ray (along with a Mantoux tuberculin skin test). Note that the chest X-ray should be obtained even if the tuberculin skin test result is negative.

All physicians and other medical providers who care for refugees and immigrants from these African countries are strongly encouraged to follow these guidelines. All organizations that work with these individuals should encourage them to receive appropriate medical evaluation. Such organizations should also provide assistance as needed to help all refugees and immigrants obtain necessary medical services.

If you have questions regarding the tuberculosis recommendations, please contact MDOH's Section of Vaccine-
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1999 Outbreaks of Communicable Disease

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Accurately identifying the source of an outbreak requires collaborative interaction among personnel in various roles and work settings. Depending upon the complexity of the outbreak, interaction may involve federal, state, local and facility-based personnel. These persons function as a team with each playing an integral part in resolving the outbreak. The Section of Communicable Disease Control and Veterinary Public Health is grateful for the assistance of persons statewide who contribute time, concerted effort and expertise helping to protect Missouri citizens from infectious diseases.

1999 Community Outbreaks

In 1999, 59 communicable disease outbreaks occurring within communities were reported in Missouri. These 59 outbreaks involved 2,183 persons and represent an increase of 63.9 percent from the 36 outbreaks reported in 1998. These outbreaks involved different modes of transmission and a variety of etiologic agents in a number of different settings. See Table 1.

Schools were the most common setting for outbreaks in 1999, accounting for 22 (37.3%) of the 59 reported outbreaks. The largest of the outbreaks was due to a flu-like illness in one school affecting 185 students. Similar flu-like illnesses occurred in 11 other schools with 768 persons reported as ill.

The largest category of outbreaks (16) reported during 1999 was acute gastrointestinal illness (AGI). Eight of the 16 reported AGI outbreaks were associated with contaminated food, one was associated with contaminated water, one highly suspected as associated with contaminated water, three were person-to-person spread, and the remaining three had unknown modes of transmission.

Table 1. Community disease outbreaks by cause, setting and number of cases, Missouri, 1999.

Disease/ Mode of Transmission	No. of Outbreaks	Setting	No. of Cases
Acute Gastrointestinal Illness of Unknown Etiology/			
Foodborne	8	CC, 2HC, O, 4R	106
Person-to-Person	3	HC, OT, S	46
Waterborne	2	HC, OT	24
Unknown	3	CP, HC, S	118
Acute Respiratory Illness of Unknown Etiology/			
Person-to-Person	1	OSE	19
Conjunctivitis/Unknown Cause	1	O	26
Cyclospora/Foodborne	1	R	59
Giardiasis/Person-to-Person	1	CC	8
Hepatitis A/			
Foodborne	2	2R	83
Person-to-Person	2	2CC	9
Unknown	1	S	5
Influenza A/Person-to-Person/Air	2	G, S	83
Influenza B/Person-to-Person/Air	1	G	3
Influenza-Like Illness/ Person-to-Person/Air	12	12S	953
Legionellosis/Waterborne	1	O	4
Mononucleosis/Person-to-Person	1	S	27
Pink Eye/Person-to-Person	1	S	84
Salmonellosis			
Foodborne	3	2CHG, FG	93
Person-to-Person	1	CC	5
Vector (chicks/ducks)	1	SW	40
Waterborne	1	G	124
Unknown	1	MS	5
Shigellosis/			
Foodborne	1	G	19
Person-to-Person	4	3CC, S	103
Unknown	1	S	30
Strep Grp A (sore throats)/ Person-to-Person	3	CC, 2S	103
TOTAL	59		2,183
Key: CC =Child Care G =General Community OSE=Out-of-State CHG =Church Gathering HC =Home/Catered Event R =Restaurant CP =Camp MS =Multi-state S =School FG =Family Gathering O =Occupational SW =Statewide			

The outbreak of acute respiratory illness with unknown etiology was interesting in that 19 of 42 persons traveling to Spain and Portugal returned ill. The symptoms were cough, fever and sore throat, with a combination of either one, two or all symptoms. Five individuals required a visit to a hospital emergency room and three were hospitalized. Tests for *Legionella* and influenza were negative. One sputum specimen was reported as "heavy with *Haemophilus influenzae* serogroup b (Hib)."

An outbreak of conjunctivitis occurred among factory employees. Due to the lack of purulent drainage, 10 eye swab specimens were obtained for viral testing. These cultures were negative. The outbreak ended before further testing could be performed.

Cyclospora cayatanensis was responsible for the illness of 59 persons as a direct result of contaminated uncooked basil supplied to two food facilities by a common distributor. *C. cayatanensis* is a protozoan parasite and is the only species of this genus described as a human pathogen. Research has demonstrated that oocysts of *C. cayatanensis* that become seeded on vegetables **cannot** be easily removed by washing. In the United States, foodborne outbreaks have accounted for the majority of recognized cases and have been associated with the consumption of raspberries, mesclun lettuce and basil. This outbreak underscores that new approaches may be required to prevent illnesses associated with foods that have not been traditionally viewed as potentially hazardous.

A Legionellosis outbreak affecting four persons occurred in a workplace with two persons requiring hospitalization. The actual source for *Legionella pneumophila* was not determined.

A variety of *Salmonella* species were responsible for the seven outbreaks listed in Table 1. Foodborne outbreaks were associated with *S. javiana*, *S. muenchen* and *S. enteritidis*. A municipal water supply was associated with a *S.*

Table 2. Nosocomial disease outbreaks by cause and number of cases, Missouri, 1999.

Disease/ Mode of Transmission	No. of Outbreaks	No. of Cases
Acute Gastrointestinal Illness of Unknown Etiology/ Person-to-Person	2	134
Acute Lower Respiratory Illness of Unknown Etiology/Person-to-Person	3	81
<i>Clostridium difficile</i> Illness/ Person-to-Person or Environment-to-Person	1	5
Influenza/Person-to-Person/Air	10	368
Influenza-like Illness/ Person-to-Person	3	69
Norwalk/Norwalk-like Illness/ Person-to-Person	2	148
Methicillin-Resistant <i>Staphylococcus aureus</i> (MRSA)/Person-to-Person	2	15
Scabies/Person-to-Person	7	124
<i>Streptococcus pyogenes</i> (Group A)/ Person-to-Person	1	20
TOTAL	31	964

typhimurium waterborne outbreak resulting in 124 persons becoming ill. The water system was found to have two vents in disrepair plus a low chlorine level. The water tower was drained, refilled and hyperchlorinated and the vents repaired. No further illness occurred following these control measures.

The vectorborne outbreak of *S. typhimurium* involved the handling of young fowl, mainly baby chickens and ducks, given to children or purchased by families in celebration of the Easter holiday. This outbreak with identical pulse-field gel electrophoresis (PFGE) patterns received media attention to stress the importance of handwashing after handling baby fowl. Prior to the Easter 2000 season, a press release was issued to remind the public about the risk of acquiring *Salmonella* disease when proper handwashing is not done after handling chicks, ducklings, and other

fowl as well as reptiles. In addition, a brochure on chicks and ducklings was developed and distributed through farm and feed suppliers. (Results of a case-control study performed to identify risk factors associated with this outbreak can be found in the April 14, 2000 edition of the *Morbidity and Mortality Weekly Report* (MMWR), Vol. 49, No. 14.)

Members of the genus *Shigella* were responsible for six outbreaks. One *Shigella sonnei* outbreak occurring in a child care center was the direct result of allowing children to attend and teachers to work while symptomatic with diarrhea.

1999 Nosocomial Outbreaks

Health care-associated (nosocomial) outbreaks are a Category II reportable disease or finding that require reporting to the local health authority or Department of Health within three days of first knowledge or suspicion. Historically,
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Sexually Transmitted Diseases in Missouri: 1999

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Gonorrhea

During 1999, 8,187 cases of gonorrhea were reported in Missouri residents. However, because of underdiagnosis and underreporting, the actual number of Missourians infected with *Neisseria gonorrhoeae* (and with the other sexually transmitted pathogens discussed below) is undoubtedly higher than what is reported here. The rate* of reported gonorrhea cases in the state in 1999 was 150.5 per 100,000 population, which was slightly higher than the nationwide rate of 133.2. Missouri ranked 15th among the fifty states in rates of reported gonorrhea cases in 1999.

Of total gonorrhea cases reported in Missouri in 1999, 45.5 percent were in males and 54.5 percent were in females. Among African Americans, a slightly higher proportion of cases were reported in males (50.8%) than in females (49.2%). Among whites, a much higher proportion of cases were reported in females (73.3%) than in males (26.7%).

Of the 8,187 cases of gonorrhea reported in 1999, 5,779 (70.6%) were known to have occurred in African Americans, 890 (10.9%) in whites, 53 (0.6%) in Asians, and 6 (0.1%) in Native Americans. In addition, 46 (0.6%) cases were classified as Other Race. For 1,413 (17.3%) cases, race was not indicated. Table 1 shows the numbers and percentages of reported gonorrhea cases in whites and African Americans for Missouri, St. Louis City and County, Kansas City, and Outstate Missouri.

* All rates (except those for congenital syphilis cases) are per 100,000 population, using 1998 population estimates.

Among reported gonorrhea cases, African Americans continue to be very disproportionately represented. In 1999, over six times as many cases were reported in African Americans compared to whites. The rate of reported gonorrhea cases in African Americans in 1999 was 943.1 and the rate in whites was 18.8, resulting in a ratio of African American to white rates of 50:1. However, this ratio has been generally decreasing in recent years; five years previously (1994), it was 71:1. Table 1 shows the rates of reported gonorrhea cases in 1999 in whites and African Americans for Missouri, St. Louis City and County, Kansas City, and Outstate Missouri.

A substantial proportion of reported gonorrhea cases in females are in teenagers. In 1999, persons less than 20 years of age made up 44.0 percent of African American female cases, 48.2 percent of white female cases, 24.0 percent of African American male cases, and 19.7 percent of white male cases. Figure 1 shows the distribution of cases by age group for white males and females, and African American males and females.

In 1999, of the 8,187 gonorrhea cases reported, 2,876 (35.1%) were from St. Louis City, 1,897 (23.2%) from Kansas City, 1,797 (21.9%) from St. Louis County, and 1,617 (19.8%) from the remainder of the state (Outstate Missouri). Cases were reported from 81 (71.1%) of the state's 114 counties (and St. Louis City). Figure 2 shows the number of gonorrhea cases reported from each county in 1999.

The highest rate of reported gonorrhea cases in 1999 was in St. Louis City (847.6), followed by Kansas City (422.0), St. Louis County (179.9), and Outstate Missouri (44.3). St. Louis City ranked 3rd among U.S. cities of >200,000 population in rates of reported gonorrhea cases in 1999; Kansas City ranked 15th.

The annual number of reported cases of gonorrhea in Missouri had decreased

each year from 1989 to 1997. In 1998, the 9,463 gonorrhea cases reported represented a 23.6 percent increase from the 7,656 cases reported in 1997. However, from 1998 to 1999, the number of reported cases decreased by 13.5% to 8,187.

From 1998 to 1999, reported cases of gonorrhea in St. Louis County increased by 1.9 percent (from 1,764 to 1,797 cases); St. Louis City cases decreased by 21.2 percent (from 3,652 to 2,876 cases); Kansas City cases decreased by 20.1 percent (from 2,375 to 1,897 cases); and Outstate cases decreased by 3.3 percent (from 1,672 to 1,617 cases).

Trends over time in the **rates** of reported gonorrhea cases parallel the trends in the actual numbers of reported cases. Figure 3 shows trends in gonorrhea **rates** from 1992–1999 for Missouri, St. Louis City and County, Kansas City, and Outstate Missouri.

Comment:

The number of gonorrhea cases reported in Missouri in 1999 decreased by 13.5 percent from the preceding year. However, the 8,187 cases reported in 1999 reflect the fact that gonococcal infection remains a very significant problem in the state. The true magnitude of the problem is even better understood when it is remembered that many infected persons are not diagnosed and reported because infection with *Neisseria gonorrhoeae*, especially in females, is often asymptomatic.

African Americans and teenagers (especially female teenagers), are very disproportionately represented among reported cases of gonorrhea. The highest rates of reported cases (as well as the largest numbers of cases) are from Missouri's two major metropolitan areas—St. Louis and Kansas City. However, gonorrhea cases were reported from 81 (71.1%) of the state's 114 counties (and St. Louis City) in 1999, indicating

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**Figure 1. Reported Gonorrhea Cases by Race, Gender and Age Group
Missouri, 1999**

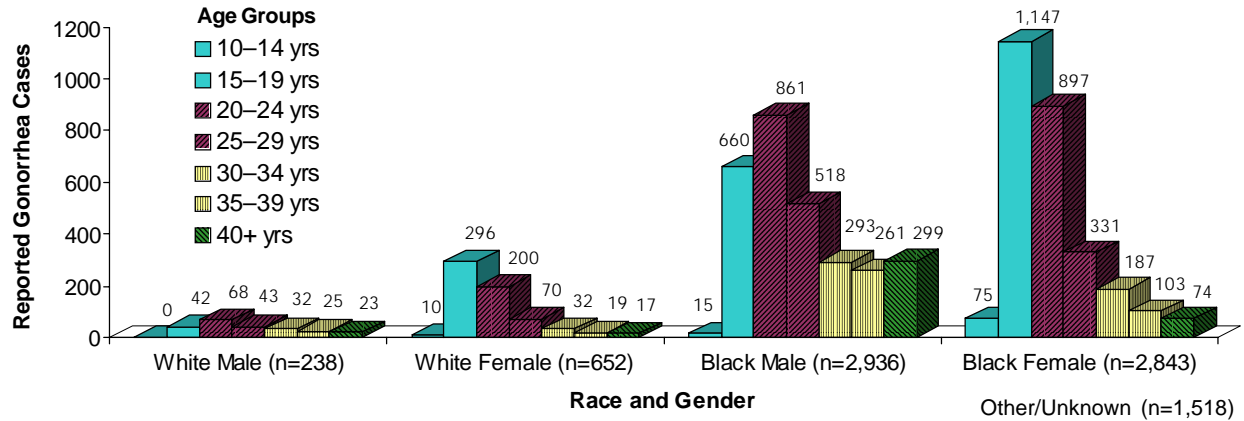
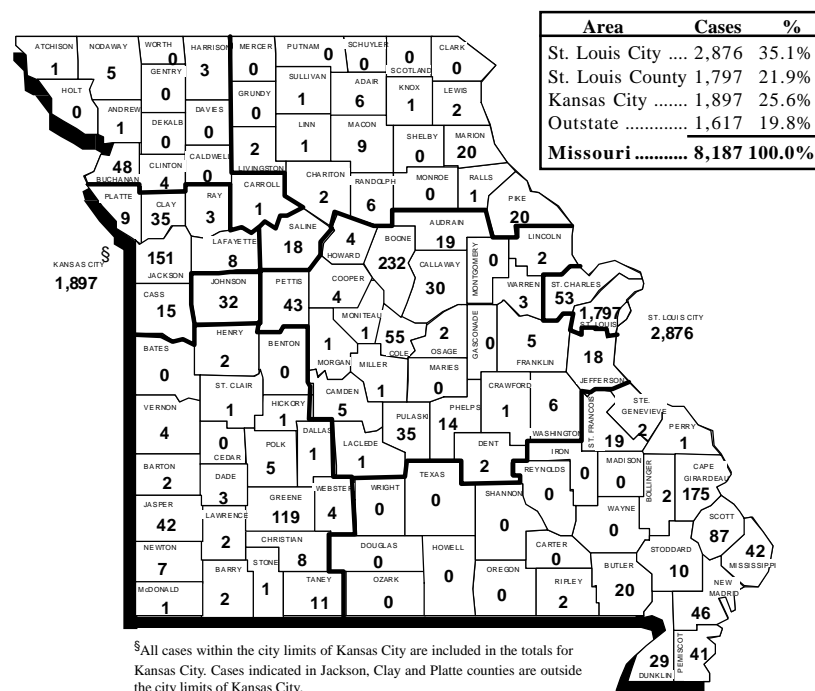


Table 1. Reported Gonorrhea Cases and Rates by Geographic Area, Missouri, 1999

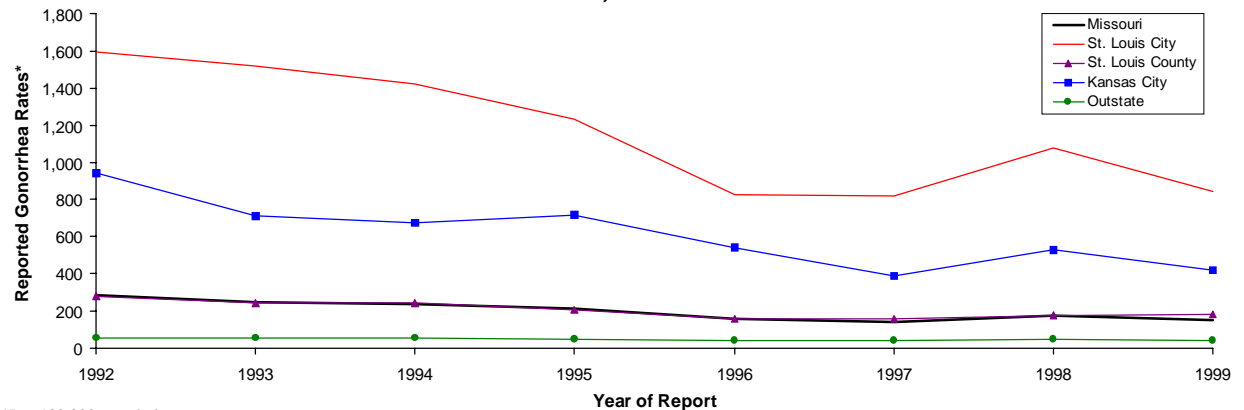
	Cases	%	Rate*
Missouri			
Whites	890	10.9%	18.8
Blacks	5,779	70.6%	943.1
Other/Unknown	1,518	18.5%	--
Total Cases	8,187	100.0%	150.5
St. Louis City			
Whites	77	2.7%	49.5
Blacks	2,266	78.8%	1,268.2
Other/Unknown	533	18.5%	--
Total Cases	2,876	100.0%	847.6
St. Louis County			
Whites	97	5.4%	11.9
Blacks	1,260	70.1%	768.2
Other/Unknown	440	24.5%	--
Total Cases	1,797	100.0%	179.9
Kansas City			
Whites	147	7.7%	49.0
Blacks	1,572	82.9%	1,181.7
Other/Unknown	178	9.4%	--
Total Cases	1,897	100.0%	422.0
Outstate			
Whites	569	35.2%	16.4
Blacks	681	42.1%	496.8
Other/Unknown	367	22.7%	--
Total Cases	1,617	100.0%	44.3

*Per 100,000 population

**Figure 2. Reported Gonorrhea Cases by County
Missouri, 1999**



**Figure 3. Reported Gonorrhea Rates by Geographic Area and Year of Report
Missouri, 1992–1999**



(continued from page 4)
the widespread distribution of the infection.

A summary of the main principles of managing gonorrhea in adults and adolescents is given on page 11.

Primary and Secondary (P&S) Syphilis

During 1999, 96 cases of P&S syphilis were reported in Missouri residents. (An additional 99 cases of early latent [duration of <1 year] syphilis were reported during 1999.)

The rate of reported P&S syphilis cases in the state in 1999 was 1.8 per 100,000 population, which was slightly lower than the nationwide rate of 2.5. Missouri ranked 19th among the fifty states in rates of reported P&S syphilis cases in 1999.

Of the 96 P&S syphilis cases reported in 1999, 49.0 percent were in males and 51.0 percent were in females. Seventy-two cases (75.0%) were in African Americans, and 16 (16.7%) were in whites. For 8 (8.3%) cases, race was not indicated. Table 2 shows the numbers and percentages of reported P&S syphilis cases in whites and African Americans for Missouri, St. Louis City and County, Kansas City, and Outstate Missouri.

African Americans are disproportionately represented among reported P&S syphilis cases. The rate of reported P&S syphilis cases in African Americans in 1999 was 11.7 and the rate in whites was 0.3, resulting in a ratio of African American to white rates of 35:1. However, this ratio is less than in recent years; five years previously (1994), it was 93:1. Table 2 shows the rates of reported P&S syphilis cases in whites and African Americans for Missouri, St. Louis City and County, Kansas City, and Outstate Missouri.

The average age at time of diagnosis is higher for reported cases of P&S syphilis

* All rates (except those for congenital syphilis cases) are per 100,000 population, using 1998 population estimates.

as compared to reported cases of chlamydia or gonorrhea. For reported cases of P&S syphilis in males during 1999, the largest proportion of cases (29.8%) were in the 40+ age group. For females, the largest proportion of cases (20.4%) were in the 20–24 year age group; however, 18.4 percent of all female cases were in women 30 years of age and older. Figure 4 shows the distribution of cases by age group for white males and females, and African American males and females.

Of the 96 P&S syphilis cases reported in 1999, 51 (53.1%) were from St. Louis City, followed by 18 (18.8%) from Outstate Missouri, 17 (17.7%) from St. Louis County, and 10 (10.4%) from Kansas City. Besides St. Louis City, cases were reported from only 11 (9.6%) of the state's 114 counties. Figure 5 shows the number of P&S syphilis cases reported from each county in 1999.

The highest rate of reported P&S syphilis cases in 1999 was in St. Louis City (15.0), followed by Kansas City (2.2), St. Louis County (1.7), and Outstate Missouri (0.7). St. Louis City ranked 8th among U.S. cities of >200,000 population in rates of reported P&S syphilis cases in 1999; Kansas City ranked 33rd.

Since 1993, when a syphilis outbreak in the St. Louis area was at its height, the number of annually reported cases of P&S syphilis in Missouri has been decreasing, although the rate of decrease has slowed during the past three years. The 96 cases reported in 1999 represented an 11.9 percent decline from the 109 cases reported in 1998.

From 1998 to 1999, reported cases of P&S syphilis decreased by 40 percent (from 30 to 18 cases) in the Outstate area. Reported cases from St. Louis County increased by 11.8 percent (from 15 to 17 cases); reported St. Louis City cases decreased by 12.1 percent (from 58 to 51 cases). Ten P&S syphilis cases were reported from Kansas City during 1999, compared with six the preceding year.

Trends over time in the **rates** of reported P&S syphilis cases parallel the trends in

the actual numbers of reported cases. Figure 6 shows trends in P&S syphilis **rates** from 1992–1999 for Missouri, St. Louis City and County, Kansas City, and Outstate Missouri.

Comment:

The annual number of P&S syphilis cases reported in Missouri continues to decline; the 96 cases reported in 1999 represent an 11.9 percent decrease from the 109 cases reported the previous year. African Americans continue to be very disproportionately affected by syphilis, and relatively few P&S syphilis cases are being reported in whites. The average age at time of diagnosis is higher for reported cases of P&S syphilis as compared to reported cases of chlamydia or gonorrhea, and a noticeable number of cases are seen in persons >35 years of age.

Syphilis infections primarily occur in certain core populations, which in Missouri in recent years have predominantly been located in the St. Louis area. The relatively limited geographic distribution of the disease in the state is indicated by the fact that only 11 (9.6%) of the state's 114 counties (and St. Louis City) reported P&S syphilis cases in 1999.

The number of reported cases of P&S syphilis in Missouri is small in comparison to other sexually transmitted diseases (STDs) such as gonorrhea and chlamydia. However, severe disease can result from untreated syphilis infection, and significant resources must be devoted to control of even a relatively few number of cases. The potential also remains for the recurrence of significant outbreaks of syphilis in the state.

The Missouri Department of Health's Section of STD/HIV/AIDS Prevention and Care Services has received a five-year Syphilis Elimination Grant focusing on eliminating syphilis in St. Louis City by 2005. Strategies being planned as part of this effort include (but are not limited to) enhanced syphilis screening

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**Figure 4. Reported P&S Syphilis Cases by Race, Gender and Age Group
Missouri, 1999**

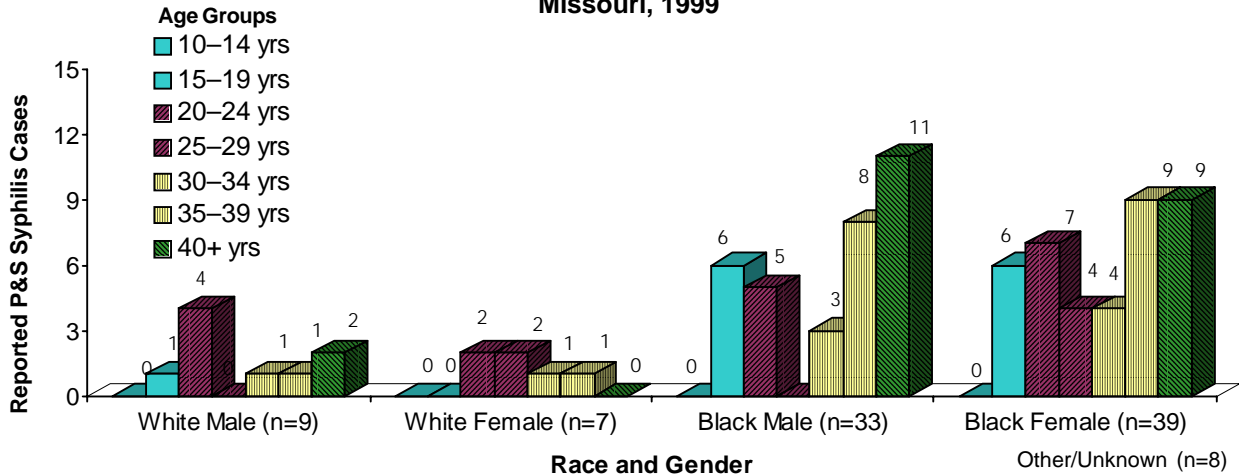
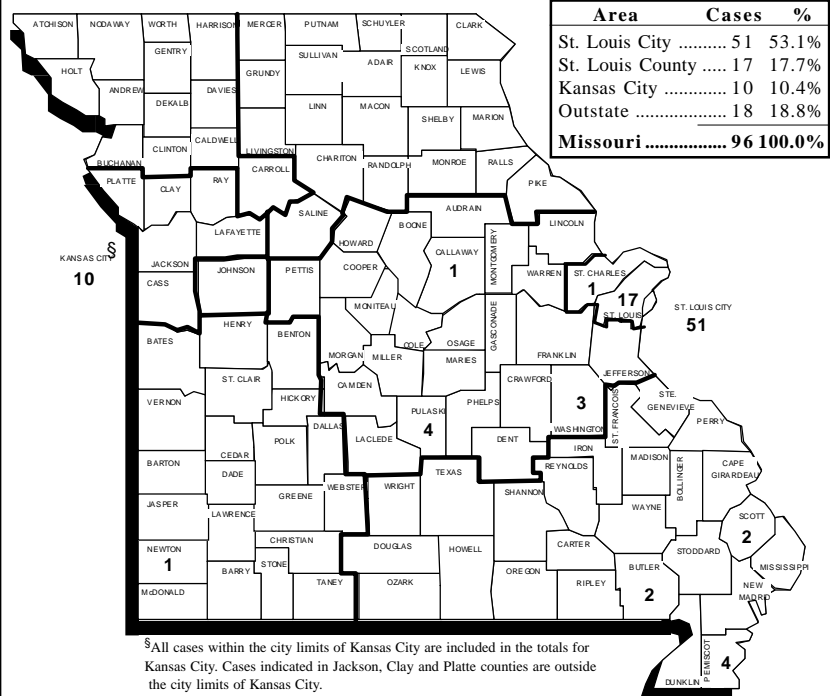


Table 2. Reported P&S Syphilis Cases and Rates by Geographic Area, Missouri, 1999

	Cases	%	Rate*
Missouri			
Whites	16	16.7%	0.3
Blacks	72	75.0%	11.7
Other/Unknown	8	8.3%	--
Total Cases	96	100.0%	1.8
St. Louis City			
Whites	1	2.0%	0.6
Blacks	46	90.2%	30.3
Other/Unknown	4	7.8%	--
Total Cases	51	100.0%	15.0
St. Louis County			
Whites	2	11.8%	0.2
Blacks	12	70.6%	7.3
Other/Unknown	3	17.6%	--
Total Cases	17	100.0%	1.7
Kansas City			
Whites	1	10.0%	0.1
Blacks	9	90.0%	5.4
Other/Unknown	0	0.0%	--
Total Cases	10	100.0%	2.2
Outstate			
Whites	12	66.7%	0.4
Blacks	5	27.8%	4.9
Other/Unknown	1	5.6%	--
Total Cases	18	100.0%	0.7

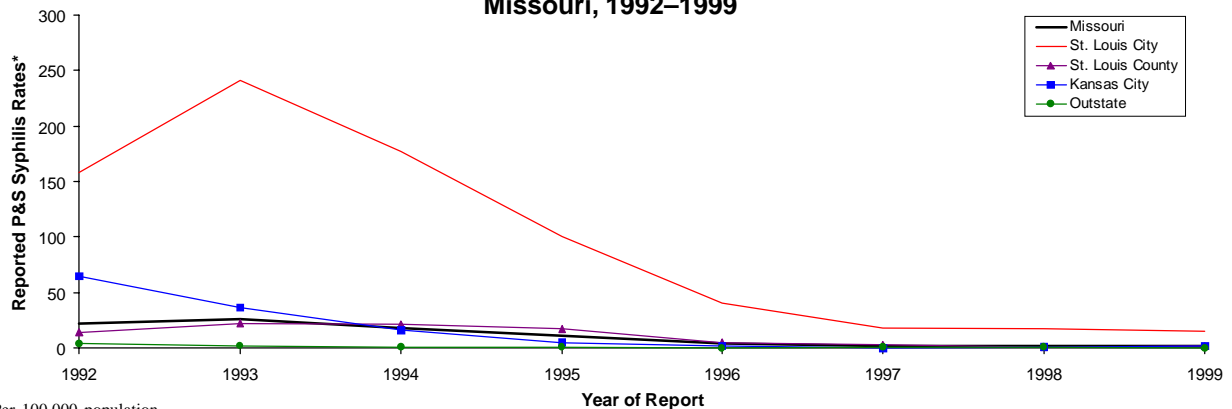
*Per 100,000 population

**Figure 5. Reported P&S Syphilis Cases by County
Missouri, 1999**



§All cases within the city limits of Kansas City are included in the totals for Kansas City. Cases indicated in Jackson, Clay and Platte counties are outside the city limits of Kansas City.

**Figure 6. Reported P&S Syphilis Rates by Geographic Area and Year of Report
Missouri, 1992-1999**



*Per 100,000 population

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in the St. Louis criminal justice system, along with increased screening at homeless shelters, and at street and community site locations. Screening at these locations, where persons at increased risk for syphilis may be found, can be an effective way to locate undiagnosed cases. In addition, the St. Louis City Department of Health and Hospitals has partnered with representatives from community organizations, drug treatment centers, correctional facilities and outreach workers to form a Community Syphilis Elimination Advisory Group (CSEAG) for the City of St. Louis. For more information on the grant, contact Amy Holterman at (800) 359-6259 or (573) 751-6141.

A summary of the main principles of managing P&S syphilis in adults and adolescents is given on page 12.

Congenital Syphilis

Congenital syphilis is the result of transmission of *Treponema pallidum* from an infected mother to her infant during pregnancy or at the time of delivery. During 1999, 8 congenital syphilis cases were reported in the state; the corresponding rate** was 10.6 cases per 100,000 live births.

During the preceding year, 1998, 20 cases of congenital syphilis were reported in Missouri, compared to 801 cases reported nationwide (most recent U.S. data). The rate of congenital syphilis cases in Missouri (27.0) in 1998 was higher than the nationwide rate (20.6).

African American infants are disproportionately represented among reported congenital syphilis cases. Of the 8 cases reported in 1999, 6 (75.0%) were in African American infants.

Of the 8 congenital syphilis cases reported in 1999, 4 (50.0%) were known to have been born to single (never married) mothers. Three (37.5%) of the 8

cases were known to have been born to mothers who received no prenatal care.

Of the 8 congenital syphilis cases reported in 1999, 4 (50.0%) were from St. Louis City, 2 (25.0%) from St. Louis County, 1 (12.5%) from Kansas City and 1 (12.5%) from Outstate Missouri.

In recent years, reported cases of congenital syphilis in Missouri peaked at 97 cases in 1993 (corresponding to the height of the syphilis outbreak in the St. Louis area), and then markedly declined to 12 cases in both 1996 and 1997. Reported cases increased to 20 cases in 1998, but then decreased by 60.0 percent to 8 cases in 1999.

Comment:

In 1999, 8 cases of congenital syphilis were reported in Missouri, a 60.0% decrease from the 20 cases reported the preceding year. African American infants made up 6 (75.0%) of the 8 cases reported in 1999. Six (75.0%) of the 8 congenital syphilis cases reported in 1999 were from the St. Louis area.

A significant risk factor often associated with congenital syphilis cases is lack of, or inadequate, prenatal care by the mother. Adequate prenatal care, which includes syphilis testing, is vital to detecting and treating infection in pregnant women so that congenital syphilis in the infant can be prevented. Minimizing the number of new syphilis infections that occur in women of childbearing age and their sexual partners is another primary means of decreasing the risk of congenital syphilis in the community.

A summary of the main principles of managing syphilis during pregnancy is given on page 13.

Chlamydia

During 1999, 13,355 cases of chlamydia were reported in Missouri residents. The rate of reported chlamydia cases in the

state in 1999 was 245.6 per 100,000 population, which was slightly less than the nationwide rate of 254.1. Missouri ranked 21st among the fifty states in rates of reported chlamydia cases in 1999.

Of total chlamydia cases reported in 1999, the vast majority were in females (86.2%). This reflects the selective screening of females for chlamydia undertaken by the Missouri Infertility Prevention Project (MIPP). If similar widespread screening of males were also undertaken, it is expected that the number of diagnosed and reported cases in males would be much higher than is currently seen.

Of the 13,355 cases of chlamydia reported in 1999, 5,291 (39.6%) cases were known to have occurred in African Americans, 3,517 (26.3%) in whites, 64 (0.4%) in Asians, and 12 (0.1%) in Native Americans; in addition, 150 (1.1%) cases were classified as Other Race. For 4,321 (32.4%) cases, race was not indicated. Table 3 shows the numbers and percentages of reported chlamydia cases in whites and African Americans for Missouri, St. Louis City and County, Kansas City, and Outstate Missouri.

African Americans are disproportionately represented among reported chlamydia cases. Although African Americans make up about 11 percent of Missouri's population, they comprise at least 39.6 percent of total reported cases. (The percentage of reported cases which are actually African American is very likely higher since some of the large number of cases for whom race was not indicated are almost certainly African American.) Table 3 shows the rates of reported chlamydia cases in whites and African Americans for Missouri, St. Louis City and County, Kansas City, and Outstate Missouri (because almost one-third of reported cases did not have a race indicated, the rates shown will obviously be lower than would have been the case had the race been known for each case reported).

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* All rates (except those for congenital syphilis cases) are per 100,000 population, using 1998 population estimates.

** All rates for congenital syphilis cases are per 100,000 live births.

**Figure 7. Reported Chlamydia Cases by Race, Gender and Age Group
Missouri, 1999**

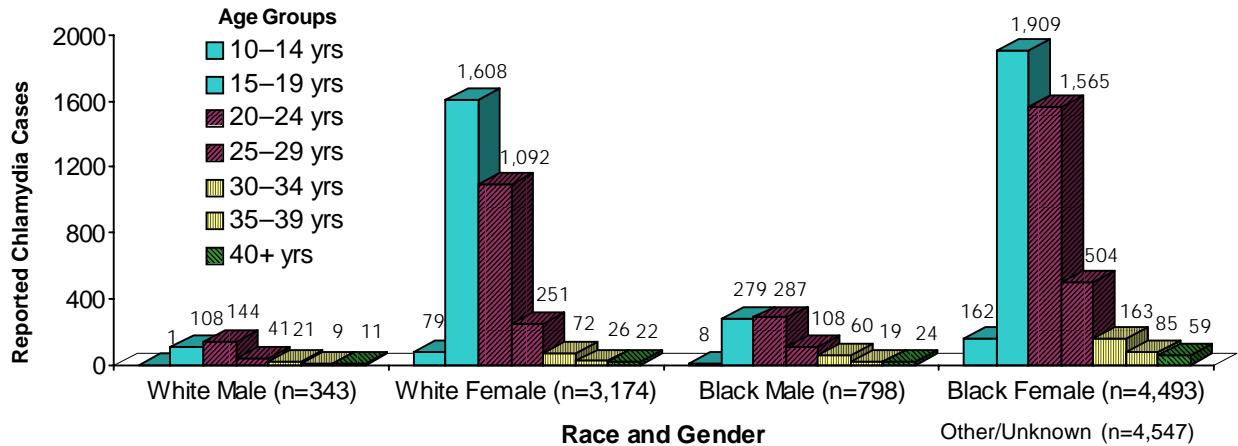
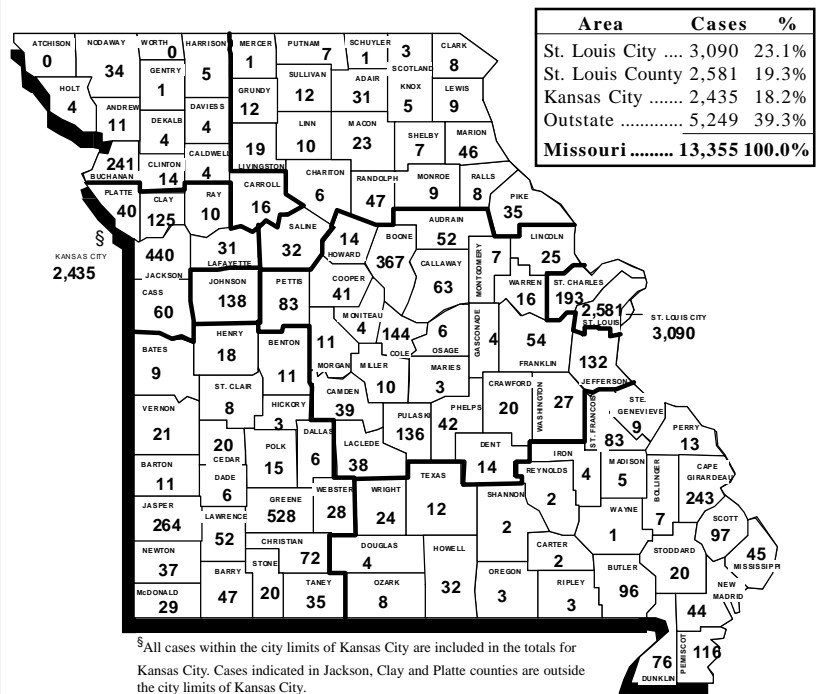


Table 3. Reported Chlamydia Cases and Rates by Geographic Area, Missouri, 1999

	Cases	%	Rate*
Missouri			
Whites	3,517	26.3%	74.1
Blacks	5,291	39.6%	863.4
Other/Unknown	4,547	34.0%	--
Total Cases	13,355	100.0%	245.6
St. Louis City			
Whites	118	3.8%	75.8
Blacks	1,933	62.6%	1,081.8
Other/Unknown	1,039	33.6%	--
Total Cases	3,090	100.0%	910.7
St. Louis County			
Whites	244	9.5%	30.0
Blacks	1,182	45.8%	720.7
Other/Unknown	1,155	44.8%	--
Total Cases	2,581	100.0%	258.4
Kansas City			
Whites	350	14.4%	116.6
Blacks	1,292	53.1%	971.2
Other/Unknown	793	32.6%	--
Total Cases	2,435	100.0%	541.7
Outstate			
Whites	2,805	53.4%	80.7
Blacks	884	16.8%	644.9
Other/Unknown	1,560	30.3%	--
Total Cases	5,249	100.0%	143.8

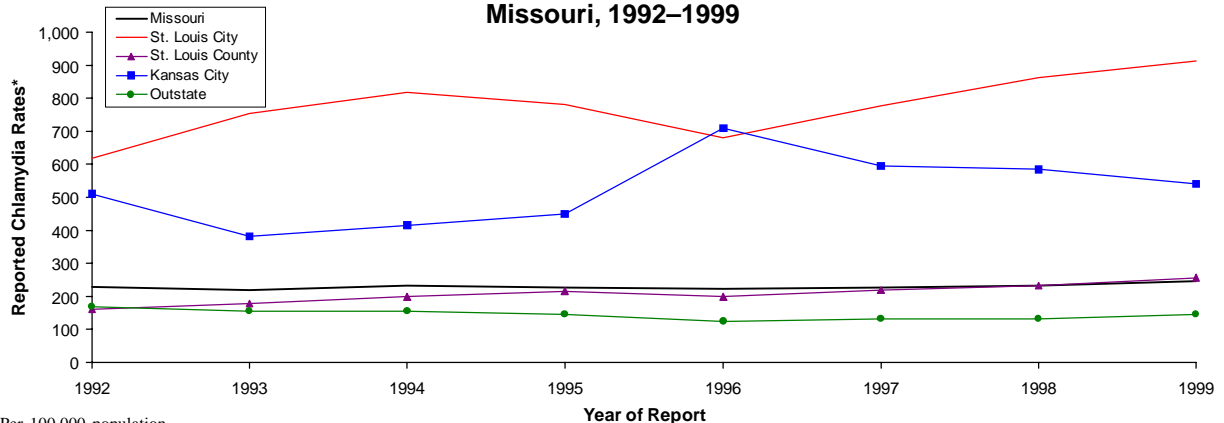
*Per 100,000 population

**Figure 8. Reported Chlamydia Cases by County
Missouri, 1999**



§All cases within the city limits of Kansas City are included in the totals for Kansas City. Cases indicated in Jackson, Clay and Platte counties are outside the city limits of Kansas City.

**Figure 9. Reported Chlamydia Rates by Geographic Area and Year of Report
Missouri, 1992-1999**



*Per 100,000 population

(continued from page 8)

In 1999, slightly over half of all reported chlamydia cases in females were in teenagers. Persons less than 20 years of age made up 47.1 percent of African American female cases and 53.9 percent of white female cases, but only 37.6 percent of African American male cases and 34.1 percent of white male cases. Figure 7 shows the distribution of cases by age group for white males and females, and African American males and females.

Of the 13,355 chlamydia cases reported in 1999, the largest number, 5,249 (39.3%) were from Outstate Missouri, followed by 3,090 (23.0%) from St. Louis City, 2,435 (18.2%) from Kansas City, and 2,581 (19.3%) from St. Louis County. Only two counties in Missouri did not report at least one chlamydia case in 1999. Figure 8 shows the number of chlamydia cases reported from each county in 1999.

The highest rate of reported cases in 1999 was in St. Louis City (910.7), followed by Kansas City (541.7), St. Louis County (258.4), and Outstate Missouri (143.8). St. Louis City ranked 2nd among U.S. cities of >200,000 population in rates of reported chlamydia cases in 1999; Kansas City ranked 12th.

In 1999, the 13,355 reported cases of chlamydia represented a 5.5 percent increase from the 12,655 cases reported in 1998.

From 1998 to 1999, reported cases of chlamydia in St. Louis City increased by 6.1 percent (from 2,911 to 3,090 cases); reported St. Louis County cases increased by 11.1 percent (from 2,324 to 2,581 cases); and reported Outstate cases increased by 9.3 percent (from 4,802 to 5,249 cases). Reported Kansas City cases decreased by 7.0 percent (from 2,618 to 2,435 cases).

Trends over time in the **rates** of reported chlamydia cases parallel the trends in the actual numbers of reported cases. Figure 9 shows trends in chlamydia **rates** from 1992–1999 for Missouri, St. Louis

City and County, Kansas City, and Outstate Missouri.

Comment:

Large numbers of Missourians are infected with *Chlamydia trachomatis* each year. Because of incomplete information, the race of approximately one-third of reported cases is not known. However, based on available data, it appears that African Americans in Missouri are disproportionately affected by chlamydia, although not to the extent seen with syphilis and gonorrhea. Chlamydia appears more widely distributed in the community than either syphilis or gonorrhea, and large numbers of chlamydia cases occur in whites as well as in African Americans. For all racial groups, the largest numbers of cases are reported from persons in their late teens and early twenties; among females, the 15–19 year old age group has the most reported cases.

In 1999, the highest rates of reported chlamydia cases were in St. Louis City, followed by Kansas City, St. Louis County, and Outstate Missouri. Only two Missouri counties did not report a chlamydia case in 1999.

The 13,355 cases of chlamydia reported in 1999 represented a 5.5 percent increase from the 12,655 cases reported in 1998. However, it is unclear whether this reflects an actual increase in the number of new infections, or an increase in the amount of testing of individuals at risk for chlamydial infection.

Chlamydial infection is the most common bacterial STD in the United States today, and a major cause of pelvic inflammatory disease, infertility, ectopic pregnancy, and chronic pelvic pain. The large numbers of *C. trachomatis* infections that are continuing to occur in Missouri, the insidious nature of the infection, and its potentially severe consequences (especially in women) are all reasons for concern.

Because chlamydial infection frequently occurs without symptoms, the disease is

often not diagnosed or, in some instances, not diagnosed until complications develop. Consequently, screening of persons at increased risk for *C. trachomatis* infection, such as young, sexually active women, is very important in finding infected persons so that they (and their sex partners) can be treated and further spread of infection halted, and so that, through the reporting of diagnosed cases to public health officials, the extent of infection in the population can be determined. The Centers for Disease Control and Prevention (CDC) has developed recommendations that call for screening of all sexually active females under 20 years of age at least annually, and annual screening of women ages 20 and older with one or more risk factors for chlamydia (i.e., new or multiple sex partners, or lack of consistent use of barrier contraception). All women with infection of the cervix and all pregnant women should be tested for chlamydial infection.¹ In addition, screening for *C. trachomatis* is now included as a HEDIS (Health Plan Employer Data and Information Set) 2000 measure. This HEDIS indicator measures the proportion of sexually active females between the ages of 15–25 who were screened for chlamydial infection annually.²

A summary of the main principles of managing chlamydia in adults and adolescents is given on page 14.

Final Comments

Medical providers should report, as required by Missouri law, all cases of chlamydial infection, gonorrhea, and syphilis to their local health department, or to the Missouri Department of Health's Office of Surveillance at (573) 751-9071.

STD education courses for physicians, other clinical providers, and laboratory staff are available through the St. Louis STD/HIV Prevention Training Center, Washington University School of Medicine. For more information, call (314) 747-0294 or 1522, or FAX (314)

(continued on page 23)

Important Points in Managing Gonococcal Infection in Adolescents and Adults

Information from CDC's 1998 Guidelines for Treatment of Sexually Transmitted Diseases¹

Dual Therapy for Gonococcal and Chlamydial Infections

Patients infected with *Neisseria gonorrhoeae* often are coinfecting with *Chlamydia trachomatis*; this finding led to the recommendation that patients treated for gonococcal infection also be treated routinely with a regimen effective against uncomplicated genital *C. trachomatis* infection. In geographic areas in which the rates of coinfection are low, some clinicians might prefer to test for chlamydia rather than treat presumptively. However, presumptive treatment is indicated for patients who may not return for test results.

Recommended Treatment Regimens for Uncomplicated Gonococcal Infections of the Cervix, Urethra, and Rectum in Adolescents and Adults

Cefixime 400 mg orally in a single dose OR Ceftriaxone 125 mg IM in a single dose OR Ciprofloxacin 500 mg orally in a single dose OR Ofloxacin 400 mg orally in a single dose	PLUS	Azithromycin 1 g orally in a single dose, OR Doxycycline 100 mg orally twice a day for 7 days
--	-------------	--

Alternative regimens are discussed in the CDC treatment guidelines.¹ Note that cefixime is **not** recommended if gonococcal infection of the pharynx is present.

Travel History

[An increased prevalence of fluoroquinolone-resistant gonorrhea in Hawaii has recently been reported.² CDC now recommends that for patients with gonorrhea in the United States, travel history, including sex partner travel history, should be obtained. If patients or their sex partners are likely to have acquired gonococcal infections in Hawaii, the Pacific Islands, or Asia, they should not be treated with fluoroquinolone antimicrobials; instead, ceftriaxone or cefixime should be used. For those unable to tolerate a cephalosporin, spectinomycin should be used.²]

Follow-Up

Patients who have uncomplicated gonorrhea and who are treated with any of the recommended regimens need not return for a test of cure. Patients who have symptoms that persist after treatment should be evaluated by culture for *N. gonorrhoeae*, and any gonococci isolated should be tested for antimicrobial susceptibility. Infections identified after treatment with one of the recommended regimens usually result from reinfection rather than treatment failure, indicating a need for improved patient education and referral of sex partners. Persistent urethritis, cervicitis, or proctitis also may be caused by *C. trachomatis* and other organisms.

Management of Sex Partners

Patients should be instructed to refer sex partners for evaluation and treatment. [If providers have questions regarding partner elicitation/ notification, they can contact their local health department.] All sex partners of patients who have *N. gonorrhoeae* infection should be evaluated and treated for *N. gonorrhoeae* and *C. trachomatis* infections if their last sexual contact with the patient was within 60 days before onset of symptoms or diagnosis of infection in the patient. If a patient's last sexual intercourse was >60 days before onset of symptoms or diagnosis, the patient's most recent sex partner should be treated. Patients should be instructed to avoid sexual intercourse until therapy is completed and they and their sex partners no longer have symptoms.

Allergy, Intolerance, or Adverse Reactions

Persons who cannot tolerate cephalosporins or quinolones should be treated with spectinomycin. Because spectinomycin is unreliable (i.e., only 52% effective) against pharyngeal infections, patients who have suspected or known pharyngeal infection should have a pharyngeal culture evaluated 3–5 days after treatment to verify eradication of infection.

Pregnancy

Pregnant women should not be treated with quinolones or tetracyclines. Those infected with *N. gonorrhoeae* should be treated with a recommended or alternate cephalosporin. Women who cannot tolerate a cephalosporin should be administered a single 2-g dose of spectinomycin IM. Either erythromycin or amoxicillin is recommended for treatment of presumptive or diagnosed *C. trachomatis* infection during pregnancy. [See the CDC treatment guidelines¹ for more information.]

1. CDC. 1998 Guidelines for treatment of sexually transmitted diseases. *MMWR* 1998;47(No. RR-1):59–69.

http://www.cdc.gov/nchstp/dstd/1998_STD_Guidelines/1998_guidelines_for_the_treatment.htm

2. CDC. Fluoroquinolone-resistance in *Neisseria gonorrhoeae*, Hawaii, 1999, and decreased susceptibility to azithromycin in *N. gonorrhoeae*, Missouri, 1999. *MMWR* 2000;49(37):833–7.

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4937a1.htm>

Important Points in Managing Primary and Secondary Syphilis in Adults

Information from CDC's 1998 Guidelines for Treatment of Sexually Transmitted Diseases¹

Recommended Treatment Regimen for Primary or Secondary Syphilis in Adults

Benzathine penicillin G 2.4 million units IM in a single dose.

NOTE: Recommendations for treating pregnant women are discussed on page 13. Recommendations for treating HIV-infected persons with syphilis, and for treating all persons with latent or tertiary syphilis, or with neurosyphilis, are discussed in the CDC treatment guidelines.¹

Recommended Treatment Regimen for Nonpregnant Penicillin-Allergic Adults Who Have Primary or Secondary Syphilis

Doxycycline 100 mg orally twice a day for 2 weeks,
OR
Tetracycline 500 mg orally four times a day for 2 weeks

Close follow-up of such patients is essential. There is less clinical experience with doxycycline than with tetracycline, but compliance is likely to be better with doxycycline. Alternative regimens are discussed in the CDC treatment guidelines.¹

Other Management Considerations

All patients who have syphilis should be tested for HIV infection. In geographic areas in which the prevalence of HIV is high, patients who have primary syphilis should be retested for HIV after 3 months if the first HIV test result was negative.

Patients who have syphilis and who also have symptoms or signs suggesting neurologic disease (e.g., meningitis) or ophthalmic disease (e.g., uveitis) should be evaluated fully for neurosyphilis and syphilitic eye disease; this evaluation should include CSF analysis and ocular slit-lamp examination. Such patients should be treated appropriately according to the results of this evaluation. Invasion of CSF by *Treponema pallidum* accompanied by CSF abnormalities is common among adults who have primary or secondary syphilis. However, neurosyphilis develops in only a few patients after treatment with the regimens described in this report. Therefore, unless clinical signs or symptoms of neurologic or ophthalmic involvement are present, lumbar puncture is not recommended for routine evaluation of patients who have primary or secondary syphilis.

Follow-Up

Patients should be reexamined clinically and serologically at both 6 months and 12 months; more frequent evaluation may be prudent if follow-up is uncertain. Patients who have signs or symptoms that persist or recur or who have a sustained fourfold increase in nontreponemal test titer (i.e., in comparison with either the baseline titer or a subsequent result) probably failed treatment or were reinfected. These patients should be re-treated after reevaluation for HIV infection. Unless reinfection with *T. pallidum* is certain, a lumbar puncture also should be performed. Failure of nontreponemal test titers to decline fourfold within 6 months after therapy for primary or secondary syphilis identifies persons at risk for treatment failure. Such persons should be reevaluated for HIV infection. Optimal management of such patients is unclear. At a minimum, these patients should have additional clinical and serologic follow-up. HIV-infected patients should be evaluated more frequently (i.e., at 3-month intervals instead of 6-month intervals). If additional follow-up cannot be ensured, re-treatment is recommended. Some experts recommend CSF examination in such situations. When patients are re-treated, most experts recommend re-treatment with three weekly injections of benzathine penicillin G 2.4 million units IM, unless CSF examination indicates that neurosyphilis is present.

Management of Sex Partners

Sexual transmission of *T. pallidum* occurs only when mucocutaneous syphilitic lesions are present; such manifestations are uncommon after the first year of infection. However, persons exposed sexually to a patient who has syphilis in any stage should be evaluated clinically and serologically according to the following recommendations:

- Persons who were exposed within the 90 days preceding the diagnosis of primary, secondary, or early latent syphilis in a sex partner might be infected even if seronegative; therefore, such persons should be treated presumptively.
- Persons who were exposed >90 days before the diagnosis of primary, secondary, or early latent syphilis in a sex partner should be treated presumptively if serologic test results are not available immediately and the opportunity for follow-up is uncertain.
- For purposes of partner notification and presumptive treatment of exposed sex partners, patients with syphilis of unknown duration who have high nontreponemal serologic test titers (i.e., $\geq 1:32$) may be considered as having early syphilis. However, serologic titers should not be used to differentiate early from late latent syphilis for the purpose of determining treatment.
- Long-term sex partners of patients who have late syphilis should be evaluated clinically and serologically for syphilis and treated on the basis of the findings of the evaluation.

The time periods before treatment used for identifying at-risk sex partners are a) 3 months plus duration of symptoms for primary syphilis, b) 6 months plus duration of symptoms for secondary syphilis, and c) 1 year for early latent syphilis.

1. CDC. 1998 Guidelines for treatment of sexually transmitted diseases. *MMWR* 1998;47(No. RR-1):28-49.
http://www.cdc.gov/nchstp/dstd/1998_STD_Guidelines/1998_guidelines_for_the_treatment.htm

Important Points in Managing Syphilis During Pregnancy

Information from CDC's 1998 Guidelines for Treatment of Sexually Transmitted Diseases¹

All women should be screened serologically for syphilis during the early stages of pregnancy. In populations in which utilization of prenatal care is not optimal, RPR-card test screening and treatment (i.e., if the RPR-card test is reactive) should be performed at the time a pregnancy is diagnosed. For communities and populations in which the prevalence of syphilis is high or for patients at high risk, serologic testing should be performed twice during the third trimester, at 28 weeks of gestation and at delivery.

Earlier this year, the Missouri General Assembly passed legislation which makes changes to the statute (210.030, RSMo) pertaining to syphilis (and hepatitis B) testing of pregnant women. With these changes, **210.030, RSMo** now states that:

Every licensed physician, midwife, registered nurse and all persons who may undertake, in a professional way, the obstetrical and gynecological care of a pregnant woman in the state of Missouri shall, if the woman consents, take or cause to be taken a sample of venous blood of such woman at the time of the first prenatal examination, or not later than twenty days after the first prenatal examination, and subject such sample to an approved and standard serological test for syphilis, an approved serological test for hepatitis B and such other treatable diseases and metabolic disorders as are prescribed by the department of health. In any area of the state designated as a syphilis outbreak area by the department of health, if the mother consents, a sample of her venous blood shall be taken later in the course of pregnancy and at delivery for additional testing for syphilis as may be prescribed by the department.....

Any woman who delivers a stillborn infant after 20 weeks of gestation should be tested for syphilis. No infant should leave the hospital without the maternal serologic status having been determined at least once during pregnancy.

Diagnostic Considerations

Seropositive pregnant women should be considered infected unless an adequate treatment history is documented clearly in the medical records and sequential serologic antibody titers have declined.

Treatment

Penicillin is effective for preventing maternal transmission to the fetus and for treating fetal-established infection. Evidence is insufficient to determine whether the specific, recommended penicillin regimens are optimal.

Recommended Regimens

Treatment during pregnancy should be the penicillin regimen appropriate for the stage of syphilis.

Penicillin Allergy

There are no proven alternatives to penicillin for treatment of syphilis during pregnancy. Pregnant women who have a history of penicillin allergy should be de-sensitized and treated with penicillin. Skin testing may be helpful. [See the section on "Management of Patients Who Have a History of Penicillin Allergy" in the CDC treatment guidelines.^{1]}

Tetracycline and doxycycline usually are not used during pregnancy. Erythromycin should not be used, because it does not reliably cure an infected fetus. Data are insufficient to recommend azithromycin or ceftriaxone.

Other Management Considerations

Some experts recommend additional therapy in some settings. A second dose of benzathine penicillin 2.4 million units IM may be administered 1 week after the initial dose for women who have primary, secondary, or early latent syphilis. Ultrasonographic signs of fetal syphilis (i.e., hepatomegaly and hydrops) indicate a greater risk for fetal treatment failure; such cases should be managed in consultation with obstetric specialists.

Women treated for syphilis during the second half of pregnancy are at risk for premature labor and/or fetal distress if the treatment precipitates the Jarisch-Herxheimer reaction. These women should be advised to seek obstetric attention after treatment if they notice any contractions or decrease in fetal movements. Stillbirth is a rare complication of treatment, but concern for this complication should not delay necessary treatment. All patients who have syphilis should be offered testing for HIV infection.

Follow-Up

Coordinated prenatal care and treatment follow-up are important, and syphilis case management may help facilitate prenatal enrollment. Serologic titers should be repeated in the third trimester and at delivery. Serologic titers may be checked monthly in women at high risk for reinfection or in geographic areas in which the prevalence of syphilis is high.

1. CDC. 1998 Guidelines for treatment of sexually transmitted diseases. *MMWR* 1998;47(No. RR-1): 28-49.
http://www.cdc.gov/nchstp/dstd/1998_STD_Guidelines/1998_guidelines_for_the_treatment.htm

Important Points in Managing Chlamydial Infection in Adolescents and Adults

Information from CDC's 1998 Guidelines for Treatment of Sexually Transmitted Diseases¹

A recent investigation of patients in a health maintenance organization demonstrated that screening and treatment of [*Chlamydia trachomatis*] cervical infection can reduce the likelihood of pelvic inflammatory disease (PID). Treatment of infected patients prevents transmission to sex partners; and, for infected pregnant women, treatment might prevent transmission of *C. trachomatis* to infants during birth. Treatment of sex partners helps to prevent reinfection of the index patient and infection of other partners.

The following recommended treatment regimens and the alternative regimens cure infection and usually relieve symptoms.

Recommended Treatment Regimens for Chlamydial Infection in Adolescents and Adults

Azithromycin 1 g orally in a single dose,

OR

Doxycycline 100 mg orally twice a day for 7 days

Alternative regimens are discussed in the CDC treatment guidelines.¹

In populations with erratic health-care-seeking behavior, poor compliance with treatment, or minimal follow-up, azithromycin may be more cost-effective because it provides single-dose, directly observed therapy.

To maximize compliance with recommended therapies, medications for chlamydial infections should be dispensed on site, and the first dose should be directly observed.

Follow-Up

Patients do not need to be retested for chlamydia after completing treatment with doxycycline or azithromycin unless symptoms persist or reinfection is suspected, because these therapies are highly efficacious.

Some studies have demonstrated high rates of infection among women retested several months after treatment, presumably because of reinfection. In some populations (e.g., adolescents), rescreening women several months after treatment might be effective for detecting further morbidity.

Management of Sex Partners

Patients should be instructed to refer their sex partners for evaluation, testing, and treatment. Because exposure intervals have received limited evaluation, the following recommendations are somewhat arbitrary. Sex partners should be evaluated, tested, and treated if they had sexual contact with the patient during the 60 days preceding onset of symptoms in the patient or diagnosis of chlamydia. Health-care providers should treat the most recent sex partner even if the time of the last sexual contact was >60 days before onset or diagnosis.

Patients should be instructed to abstain from sexual intercourse until they and their sex partners have completed treatment. Because a microbiologic test of cure usually is not recommended, abstinence should be continued until therapy is completed (i.e., 7 days after a single-dose regimen or after completion of a 7-day regimen). Timely treatment of sex partners is essential for decreasing the risk for reinfecting the index patient.

Pregnancy

Doxycycline and ofloxacin [which is one of the drugs in the alternative regimen for chlamydial infection] are contraindicated for pregnant women. The safety and efficacy of azithromycin use in pregnant and lactating women have not been established.

Either erythromycin or amoxicillin is recommended for treatment of presumptive or diagnosed *C. trachomatis* infection during pregnancy. [See the CDC treatment guidelines¹ for more information.] Repeat testing, preferably by culture, 3 weeks after completion of therapy with [these] regimens is recommended, because a) none of these regimens are highly efficacious and b) the frequent side effects of erythromycin might discourage patient compliance with this regimen. Erythromycin estolate is contraindicated during pregnancy because of drug-related hepatotoxicity.

1. CDC. 1998 Guidelines for treatment of sexually transmitted diseases. *MMWR* 1998;47(No. RR-1):53-59.
http://www.cdc.gov/nchstp/dstd/1998_STD_Guidlines/1998_guidelines_for_the_treatment.htm

Psychological Effects of a Mass Casualty Incident

Marion Warwick, M.D., M.P.H.
Bioterrorism/Emergency Response Unit

The potential for terrorism events to cause large numbers of victims, ranging in the thousands, is critical to appreciate and plan for. Discussion about biological terrorism lately has rightly been focused on the recognition and treatment of physical casualties, but we should also not neglect the profound effect that a mass casualty event would have on the psyche: of individuals, communities, and the nation. This article describes some ideas about what to expect regarding public reactions to a mass casualty event which were raised at a conference sponsored by the Armed Forces Radiobiology Research Institute in Bethesda, Maryland, July 25–27, 2000, entitled, “The Operational Impact of Psychological Casualties from Weapons of Mass Destruction.”

Judging from past occurrences of terrorist events, estimates vary from 4 to 20 psychological victims for every physical victim in a mass casualty event. In an example of the worst case, following a recent radiological event in Goiania, Brazil, in which 250 persons were actually exposed, 60,000 sought medical care and 5,000 had psychiatric symptoms, providing a 500 to 1 ratio of patients seen in the medical system to exposed victims (12.5% of the population were seen), and a 20 to 1 ratio of psychiatric to physical casualties.

Psychological effects can be described on a spectrum, from “worried well” (who can actually manifest real symptoms such as rashes, vomiting, etc.) to “shell shock” victims, who are literally incapacitated from psychological stress. Other syndromes include becoming accident-prone, developing unexplained physical symptoms, or behavioral and conduct disorders.

Some of the factors which have been associated with an increased number of psychiatric casualties are:

- The number of physical casualties (This is highly correlated with psychological victims. The greater the number of physical casualties, the greater the number of psychological casualties.)
- Lack of general knowledge about the cause
- Physical proximity to location of event
- Increased publicity and media coverage making it difficult to forget

Establishing trust with victims is of critical importance. Psychological victims can develop **real** physical symptoms for which the cause is not always readily distinguished. Even if a patient is clearly a psychological victim, it doesn't rule out the possibility they may have also been exposed to the agent. Each patient must be evaluated indi-

vidually and carefully. Patient's concerns must be taken seriously. If patients have to prove they are ill, they can't get well. Health care workers may also become psychological casualties.

Interventions include management of misattribution of physical symptoms, restoration of an effective social role, and return to usual sources of support. Constructive debriefing is an important part of prevention and treatment of psychiatric casualties. It needs to be carefully approached. At times, it may consist of groups sorting out what actually happened so that everyone gets the overall picture, not necessarily of individuals talking about their feelings.

A system for long term follow-up of patients is helpful. It is a way of saying to them: “We won't forget you.” Japan has instituted yearly physicals for those involved in the Sarin gas incident including education on post traumatic stress disorder, counseling, and support groups.

Behavioral health consequences will be the most widespread, the most long lasting, and the most expensive. A Psychological Impacts and Effects Course (PIE) is being developed through directed congressional appropriation.

Additional Notes:

Further information and educational material regarding the management of chemical and biological agent casualties is available through the United States Army Medical Research Institute of Chemical Defense, Chemical Casualty Care Division's web site at <http://ccc.apgea.army.mil/>.

The Rhode Island Emergency Management Agency has developed a very extensive list of world wide web links that contain information on terrorism and biological warfare. The web page is located at <http://www.state.ri.us/riema/>

Disease Reporting

Cases of reportable diseases and conditions should be reported promptly to your local health department, or to the Missouri Department of Health at

(800) 392-0272

(during working hours).

The emergency number is

(573) 751-4674

(for after hours, weekends or holidays).

Hazardous Substances Emergency Events Surveillance 1999 Annual Report*

Debby Hanlon
Office of Surveillance

The Hazardous Substances Emergency Events Surveillance (HSEES) program, established by the federal Agency for Toxic Substances and Disease Registry (ATSDR) in 1990, collects information on the direct public health impact of emergency events involving hazardous substances. Missouri's HSEES program receives notifications of incidents involving hazardous substances from several sources, including the Missouri Department of Natural Resources' Environmental Services Program, the United States Coast Guard's National Response Center, the federal Department of Transportation's Hazardous Materials Information System, the Missouri State Highway Patrol, and the media. Additional information regarding releases is obtained from the Missouri Departments of Agriculture, Conservation, Public Safety and Transportation; local and regional environmental protection agencies; local public health agencies; first responders; incident commanders; individuals or businesses responsible for the spill; hospitals; employees; and witnesses and victims of hazardous substance emergency events.

The Missouri HSEES program has completed its sixth year of data collection. As the program continues, new notification and data sources are explored, and information is analyzed and shared to determine the public health impact of emergency events involving the release of hazardous substances in the state. All Missouri HSEES data is transferred to ATSDR through a web-based data entry system for analysis along with the data gathered from the other 14 participating states. Identifiers are encrypted upon transfer for confidentiality.

* Data provided in this report for 1999 are preliminary. This report was supported by funds from the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) trust fund provided to the Missouri Department of Health under Cooperative Agreement Number U61/ATU780955-06 from the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services.

Case Definition for Hazardous Substance Emergency Events

A hazardous substance release is entered in the HSEES system if it meets the following criteria:

1. An uncontrolled or illegal release or threatened release of one or more hazardous substances; and
2. The substances that are actually released or threatened to be released include ALL hazardous substances except petroleum products; and
3. The quantity of the hazardous substances that are released, or are threatened to be released, need (or would need) to be removed, cleaned up, or neutralized according to federal, state or local law; or
4. Only a threatened release of hazardous substances exists, but this threat leads to an action such as an evacuation that can potentially impact on the health of employees, responders or the general public. This action makes the event eligible for inclusion into the surveillance system even though the hazardous substances are not released.

Because the goal of the HSEES program is to reduce morbidity and mortality related to hazardous substances emergency events, it is important that the public, emergency responders, employees and industries receive information and feedback from the program concerning hazardous substance emergency events. In those cases where development of intervention strategies might prevent similar incidents, specific summary investigation reports are prepared and distributed to the community involved. Outreach activities are also conducted to promote prevention strategies and increase knowledge and awareness for industries, local emergency planning committees, emergency

responders, health care providers and the general public.

Analysis of Data on Hazardous Substances Emergency Events

During calendar year 1999, 291 incidents were reported in Missouri that met the hazardous substances emergency event case definition (see sidebar). All of these events involved actual releases of hazardous substances. Of the total number of events, 279 (95.9%) involved the release of only one substance, and 12 (4.1%) involved the release of two or more substances. The most commonly released substance was ammonia, occurring in 36 (12.4%) events.

Reported events were scattered throughout the state, occurring in 59 counties and the City of St. Louis. This represents 52.2 percent of the counties in the state.

Events occurred primarily in counties where there are larger cities, interstate highways and large manufacturing or mining facilities. (See Figure 1 for the number of events occurring in each county.)

Of the 291 total events, 39 (13.4%) occurred on weekends and 252 (86.6%) occurred on weekdays. The actual number of events occurring by day of the week is: Monday (39), Tuesday (48), Wednesday (67), Thursday (61), Friday (37), Saturday (21) and Sunday (18).

Fixed facilities were involved in 165 (56.7%) of the events, while 126 events (43.3%) were transportation-related. Of the fixed-facility events, 66 (40.0%) were due to equipment failure and 55 (33.3%) were due to operator error. Thirty-eight (23.0%) events occurred due to factors other than those mentioned above. In the remaining six events (3.6%), the contributing factor was unknown. For transportation events, 115 (91.3%) involved ground transportation and 10 (7.9%) involved rail transportation. One event involved air transportation.

A total of 23 (7.9%) events resulted in 71 victims sustaining single or multiple

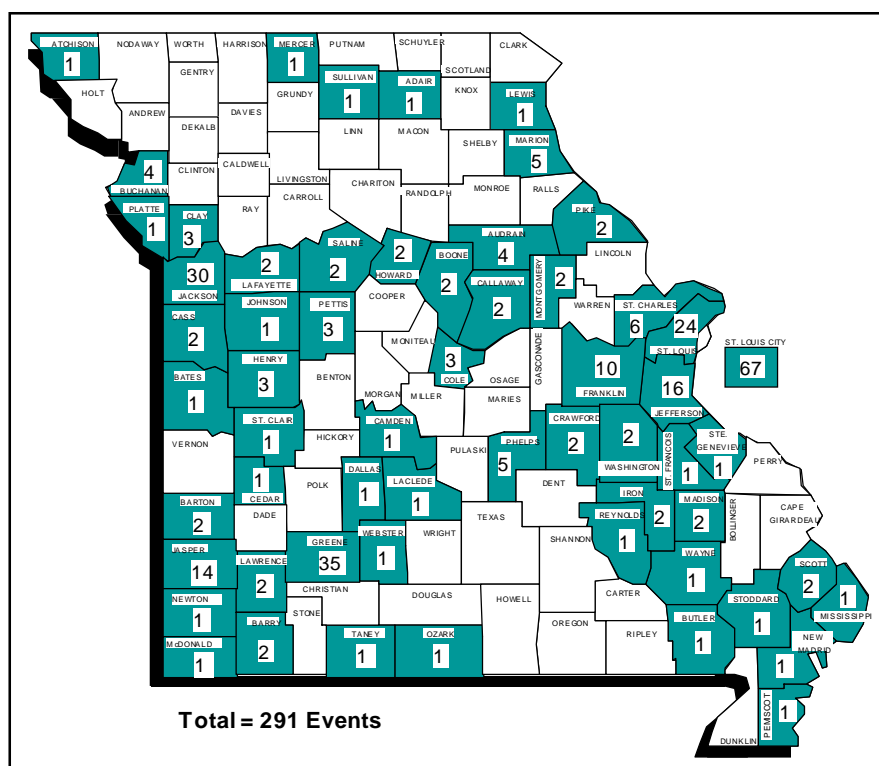


Figure 1. Number of non-petroleum hazardous substances emergency events by county, Missouri, 1999.

injuries (112 total injuries). Thirteen fixed-facility events resulted in 50 victims, and 10 transportation events resulted in 21 victims. Table 1 illustrates the percentage of events with victims and number of

victims by substance type. Some substance types, such as "Other inorganic substances", have a low percentage of events with victims, even
(continued on page 18)

Table 1. Percentage of Events with Victims and Number of Victims by Substance Type, Missouri, 1999

Substance Type (events with one substance released)	No. of Events	%	No. of Events With Victims	%	Total No. of Victims	Percentage of Events With Victims
Acids	26	8.9	2	8.7	4	7.7
Ammonia	36	12.4	2	8.7	10	5.6
Bases	18	6.2	1	4.3	1	5.6
Chlorine	3	1.0	2	8.7	26	66.7
Other inorganic substances	41	14.1	1	4.3	1	2.4
Paints and dyes	19	6.5	1	4.3	3	5.3
Pesticides	8	2.7	2	8.7	3	25.0
Polychlorinated biphenyls	10	3.4	0	0.0	0	0.0
Volatile organic compounds	33	11.3	3	13.0	4	9.1
Other substances	69	23.7	3	13.0	4	4.3
Mixtures*	16	5.5	1	4.3	5	6.3
Subtotal	279	95.7	18	78.0	61	6.5
Multiple Substance Events**	12	4.1	5	21.7	10	41.7
Grand Total	291	99.8	23	99.7	71	7.9

* One substance comprised of a mixture of substances of different types
** Events involving the release of more than one substance type
*** Total percentages less than 100% due to rounding to the nearest decimal point

(continued from page 17)

though these substances are more frequently released; however, two of the three events (66.7%) involving the release of chlorine had a total of 26 victims.

The most common types of injuries reported were respiratory irritation (39), eye irritation (29), trauma (13) and gastrointestinal symptoms (9). Injuries experienced also included chemical and thermal burns, skin irritation and headache. (See Figure 2.)

Of the 71 victims, 24 were employees, 7 were responders (police, fire, and emergency medical technician personnel), and 40 were members of the general public (including one student). Ten victims were treated at the scene of the event, 46 were treated at a hospital but were not admitted, 7 were treated at a hospital and admitted, 5 were taken to a hospital with symptoms and were observed (not admitted or treated), and 3 victims died.

The greatest number of injuries in a single event occurred when 1,000 pounds of chlorine gas were released as a cylinder was being loaded into a delivery truck by a crane and dropped to the ground. The gas began to leak when a seam ruptured, making it impossible to plug or patch. Two employees and 23 members of the general public who resided in the area suffered respiratory and eye irritation as a result of exposure. One victim was admitted to the hospital; the remaining 24 victims were treated and released. The cost for the HAZMAT team's response was estimated to be more than \$7,500.00. The cost to the facility in lost wages and productivity was not determined. In addition to the victims, approximately 150 individuals (employees and residents of the area) were evacuated and kept off their properties for seven hours, and a major highway was closed for five hours.

Three fatalities occurred in three separate events. Two deaths were transportation-related and one death occurred at a fixed facility. In the first transportation-related event, an individual was driving a car on

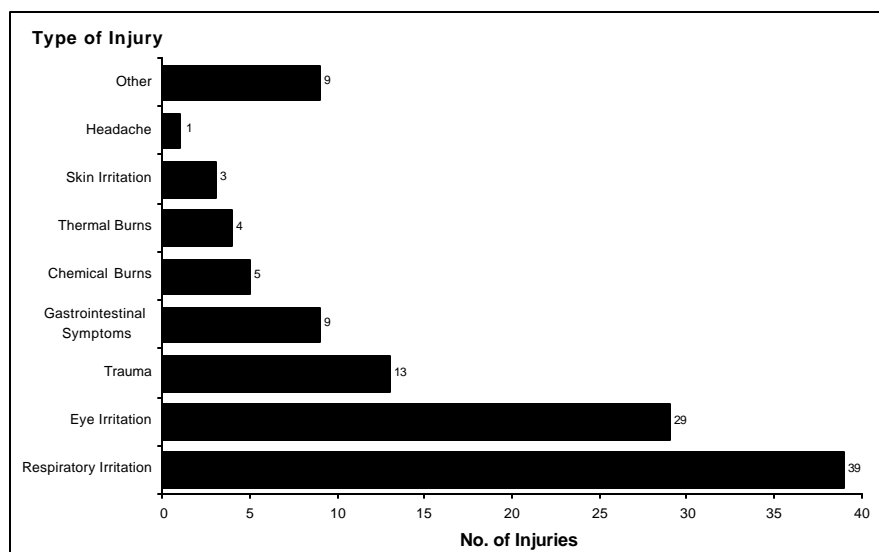


Figure 2. Number of injuries reported by type, Missouri HSEES, 1999.

an interstate highway. The passenger was holding a makeshift canister of anhydrous ammonia on his lap. The container exploded, resulting in the passenger's death. The driver suffered severe injuries and was hospitalized for seven days. One firefighter, one emergency medical technician and one individual from the general public, all of whom stopped to help, suffered from respiratory problems and inhalation burns. The cause of the smoke emanating from the car was not immediately known when these individuals pulled the driver and passenger away from the car. It is alleged that the ammonia was to be used for methamphetamine production.

The second transportation-related death occurred when a tanker trailer overturned and released six gallons of sodium hydroxide. The driver of the vehicle died from injuries sustained after being ejected from the vehicle.

The third fatality occurred in an explosion at a fireworks factory. One employee died from trauma and burns sustained during the explosion. Another employee, who was pregnant, suffered serious injuries and required an emergency Cesarean section.

Evacuations were ordered by an official in 30 (10.3%) events. Twenty-seven evacuations involved a total of 2,393 people. The number of people evacuated in three events is unknown. Sixteen

evacuations involved a building or an affected part of a building, six were within a specified radius of a release, four were downwind, two were both within a specified radius and downwind, and two were made with no defined criteria for the evacuated area.

One event involving the release of anhydrous ammonia had the largest number of people evacuated. An estimated 250 pounds of anhydrous ammonia were released due to a faulty valve at a chicken processing plant. Approximately 540 people at the facility and at a nearby campground were evacuated for two hours. The incident occurred at 3:00 a.m. on Memorial Day.

Reporting Events

The Missouri HSEES program is indebted to the Missouri Department of Natural Resources' Environmental Services Program for helping to investigate these hazardous substances emergency events. The HSEES program relies heavily on this unit for notification of events and frequently contacts them for information regarding releases.

For additional information, please visit the HSEES web site at <http://www.health.state.mo.us/hsees> or contact: Debby Hanlon, HSEES Coordinator, Missouri Department of Health, P.O. Box 570, Jefferson City, MO 65102-0570, Ph: (573) 526-1686.

1999 Outbreaks of Communicable Disease

(continued from page 3)

community outbreaks have been better reported than those occurring within health care facilities/institutions.

Although recent medical literature suggests that today's health care environment of understaffing and sicker patients is resulting in an increase of clusters or outbreaks of disease, during 1999, only 31 nosocomial disease clusters or outbreaks were reported for Missouri. The reported 31 disease outbreaks affected 964 individuals as compared to 45 nosocomial outbreaks affecting 941 persons in 1998. Table 2 categorizes these outbreaks by cause and number of cases.

Two methicillin-resistant *Staphylococcus aureus* (MRSA) outbreaks involved

multiple sites of infection. Strict attention to handwashing and the cohorting of infected persons were effective in stopping the further spread of MRSA.

An outbreak of Group A *Streptococcus* involved 20 children in a hospital pediatric unit over a period of several weeks. Pharyngeal swabs were obtained on all patients on the unit as well as all staff. Cultures were reported as negative for all staff. A child admitted for an allergic reaction to an antibiotic, with the antibiotic discontinued, was later found to be culture positive and was most likely the index case.


A facility's infection control nurse rapidly identified a cluster of five *Clostridium difficile* infections. Two of the five cases were identified as being infected at the time of admission. One case had been on long-term antibiotics and nosocomial spread to two other persons was evidenced. Rapid implementation of effective infection control

measures prevented an ongoing outbreak.


The outbreaks of influenza and influenza-like illnesses occurred largely in elderly persons with documented influenza vaccinations. Hospitalizations were minimal with the exception of one outbreak that affected five persons in a group home. All five of these individuals required hospitalization and one died.


Two Norwalk-like viral outbreaks of acute gastrointestinal illness were also identified. These two outbreaks resulted in 50 percent of care receivers becoming ill and 20 percent of health care givers reporting illness in each facility. Strict handwashing by both care receivers and care givers as well as cohorting of the ill did little to stem the spread of this rapidly transmissible infection in either facility. Wearing of masks to empty emesis basins and to flush diarrhea stool did not occur until late into the outbreak, but may be the key to stopping the spread of this virus to others.

LATE BREAKERS

 **Addition to Gonorrhea Treatment Recommendations:** An increased prevalence of fluoroquinolone-resistant gonorrhea in Hawaii has recently been reported. CDC now recommends that for all patients diagnosed with gonorrhea in the United States, a travel history, including sex partner(s) travel history, should be obtained. If patients or their sex partners are likely to have acquired gonococcal infections in Hawaii, the Pacific Islands, or Asia, they should not be treated with fluoroquinolone antimicrobials; instead, ceftriaxone or cefixime should be used. (See page 11 for recommended treatment regimens.) For those unable to tolerate a cephalosporin, spectinomycin should be used.

Source: CDC. Fluoroquinolone-resistance in *Neisseria gonorrhoeae*, Hawaii, 1999, and decreased susceptibility to azithromycin in *N. gonorrhoeae*, Missouri, 1999. *MMWR* 2000;49(37):833-7.

 **High Blood Pressure Web Page:** The National Heart, Lung and Blood Institute (NHLBI), National Institutes of Health and its National High Blood Pressure Education Program have launched a high blood pressure web page. This web page is designed as a resource for the general public, physicians, community organizations, the media and other health care professionals. The web page is part of NHLBI's web site and can be found at <http://www.nhlbi.nih.gov/hbp/index.html>. If you would like additional information on high blood pressure resources, please contact the Missouri Cardiovascular Health Program at (800) 316-0935.

 **Missouri Department of Health State Public Health Laboratory Web Page:** This web page can be accessed using the pull down menu on the Department of Health home page at <http://www.health.state.mo.us>, or directly at <http://www.health.state.mo.us/Lab/index.htm>. The web page contains information regarding the various tests available through the State Public Health Laboratory, and includes instructions for collecting and submitting specimens as well as phone numbers to call with questions.

1999–2000 Influenza Season: Greene County, Missouri

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Introduction

Influenza epidemics occur in the United States virtually every year during winter months, accounting for substantial morbidity and mortality, including an average of 114,000 hospitalizations and 20,000 deaths annually.¹ This report summarizes influenza data from Greene County, Missouri, collected during the 1999–2000 influenza season.

A variety of factors may have contributed to a perception that the 1999–2000 influenza season was particularly severe.² Outbreaks of influenza-like illnesses resulted in high frequencies of visits to physicians’ offices and emergency rooms, and in hospital admissions. The advent and marketing of two new prescription anti-influenza drugs possibly influenced care-seeking behavior of patients.^{3–4} Many hospitals in Missouri reached maximum capacity requiring diversion of patients to other facilities, prompting an informational release in early January by Dr. Maureen Dempsey, Director of the Missouri Department of Health, advising citizens

on proper use of emergency rooms and other medical facilities.

This study was initiated in January 2000, to provide a descriptive analysis of the influenza season, defined as October 1, 1999–April 30, 2000, in Greene County, Missouri. Three major sources of information for the report include routine surveillance data collected by the Springfield-Greene County Health Department, pneumonia and influenza mortality data for the past five influenza seasons, and a survey of Greene County primary care physicians and nursing homes conducted during April and May 2000.

1999–2000 Influenza Season

The first laboratory-confirmed case of influenza for the 1999–2000 influenza season in Missouri was reported on October 12, 1999, approximately one month earlier than in previous years. This was a type A strain, which occurred in a 13-year-old Greene County female. Sporadic cases appeared in Greene County until late December, when an increase in influenza activity was noted. For the week ending January 7, 2000, there were 45 confirmed cases of type A influenza. During a three-day period from January 3–5, 2000, health care facilities in Springfield reported a total of 203 cases of influenza-like illnesses not confirmed by laboratory testing. A press briefing was held on January 7, 2000, coordinated by the Springfield-Greene

County Health Department with representatives from Cox Health Systems and St. John’s Health System, to inform the public of preventive measures for influenza and signs/symptoms warranting medical attention. Similar information was disseminated through a telephone “influenza hotline” and the Health Department web site.

By the week ending January 21, 2000, the Springfield-Greene County Health Department had received reports of 170 laboratory-confirmed cases of influenza; one additional case was reported by March 3, 2000. All 171 cases reported during the season from October 1, 1999 through April 30, 2000 were type A influenza, and all cases for which viral subtypes were available were A(H3N2) viruses. Laboratory testing for 154 (91.1%) cases was performed by rapid assay, and viral cultures were obtained on 17 (9.1%) cases. Examination of demographic characteristics of confirmed cases revealed an age range of 13 days to 95 years, with 87 cases (51%) occurring in individuals from birth to 19 years, and 24 cases (14%) in persons 65 years and older. The mean age of confirmed cases was 27.1 years, and median age 45 years.

In comparison, during the 1998–1999 influenza season, a total of 85 laboratory-confirmed case reports were received by the Springfield-Greene County Health Department, of which 82 were type A and 3 were type B. The laboratory-confirmed

Table 1. Pneumonia and Influenza (P&I) Mortality by Influenza Season, Greene County, Missouri, October 1, 1999–April 30, 2000.

Year	P&I Deaths	Mean Age (years)	Median Age (years)	Age Range	Total Deaths in Time Period	Percent P&I Cause-Specific Deaths
1995–1996	100	75.0	82	1 day–94 yr	2,010	4.98%
1996–1997	130	74.9	80	1 day–99 yr	2,075	6.27 %
1997–1998	150	81.1	84	9 yr–100 yr	2,144	7.00%
1998–1999	121	81.3	83	32 yr–102 yr	2,041	5.93 %
1999–2000	109	78.3	82	30 yr–100 yr	2,122	5.14 %

case rate was 74.6 per 100,000 population for the 1999–2000 season, in contrast to 37.44 per 100,000 population for the 1998–1999 season. The 1998–1999 influenza season was more representative of patterns seen in past seasons, with only three weeks in which more than ten laboratory-confirmed cases were reported and peak activity occurred in weeks 8 to 10 (weeks ending February 25 and March 25). During the 1999–2000 season, more than ten laboratory-confirmed cases were reported per week for seven consecutive weeks, beginning in early December and ending in late January.

Since laboratory confirmation of influenza is performed on only a small proportion of cases of influenza and influenza-like illness, a more reliable indicator of the severity of an influenza season is mortality due to pneumonia and influenza, which are reported as one category. Death certificates for all deaths in Greene County with pneumonia and influenza as primary cause of death were reviewed for a five-year period, beginning with the 1995–96 influenza season. The case definition for pneumonia includes viral pneumonia; pneumococcal and other bacterial pneumonia; bronchopneumonia, organism unspecified; and pneumonia due to other and unspecified organism. Pneumonia and influenza deaths during the 1999–2000 influenza season numbered 109; pneumonia and influenza deaths during the past five influenza seasons ranged from 100–150 per year. (See Table 1.)

While the number of laboratory-confirmed cases of influenza was considerably greater during the 1999–2000 influenza season than in 1998–1999, total deaths from pneumonia and influenza and the cause-specific death rate were lower than the previous three years. The percent of pneumonia and influenza cause-specific deaths for the 1999–2000 season (5.14%) was lower than the five-year mean percent for cause-specific deaths (5.86%). This difference may be attributable to varied factors, necessitating caution in interpretation. Several variables influence the reporting of laboratory-confirmed influenza cases,

Table 2. Number and Percentage of Respondents Who Obtain Laboratory Confirmation in 0%, 1–25%, 26–50%, 51–75%, and 76–100% of Their Patients With Influenza-Like Illness, Greene County, Missouri, October 1, 1999–April 30, 2000.

<u>Percentage of Cases of Influenza-Like Illness Which Received Laboratory Confirmation</u>	<u>Respondents</u>	
	<u>Number</u>	<u>Percent</u>
None (0%)	31	33.7%
1–25%	54	58.7%
26–50%	2	2.2%
51–75%	2	2.2%
76–100%	2	2.2%
No Response	1	1.1%
Total	92	100.0%

including care seeking by patients, and medical decisions to perform laboratory testing in order to confirm a diagnosis or to prescribe specific anti-viral therapy. Mortality data are consistently reported and provide a basis for comparison with previous years.

Survey of Primary Care Providers

In order to supplement influenza morbidity and mortality data obtained through routine surveillance mechanisms, a survey of Greene County primary care physicians and nursing homes was conducted in April and May 2000. The purpose of the survey was to gather information from providers to assist in evaluation of the severity of the influenza season, and to describe diagnostic practices and use of anti-viral drug therapy, which may have affected the number of confirmed cases reported. The survey was mailed to a convenience sample of primary care physicians in the specialties of family practice, internal medicine, pediatrics, and geriatrics, and to nursing homes in Greene County. Of 224 surveys distributed, 92 (41%) were returned, with the following distribution by specialty: family practice 41 (44.6%), internal medicine 25 (27.2%), pediatrics 14 (15.2%), geriatrics 8 (4.3%) and nursing homes 4 (8.7%). Because of the small number of respondents in some groups, the analysis of survey results was limited to descriptive statistics.

Providers were asked to rate the severity of the 1999–2000 influenza season on a five-point Likert scale comparing the

number of cases of influenza-like illness seen in past seasons. Of the surveys returned, 62 percent rated the 1999–2000 influenza season as much worse or somewhat worse than past seasons, 25 percent about the same as past seasons, and 12 percent as somewhat better or much better than past seasons.

To describe patterns in use of laboratory testing for diagnosis, respondents were asked the proportion of influenza-like illnesses for which laboratory confirmation was obtained, the method of laboratory testing utilized, and the primary use of laboratory confirmation for viral respiratory illness (confirm diagnosis for specific anti-viral therapy; rule out other viral illnesses, including respiratory syncytial virus (RSV); rule out bacterial illness, including pneumonia; or did not obtain laboratory confirmation).

Laboratory testing for confirmation of influenza was not used for the majority of cases seen by responding providers. Of the 92 respondents, 85 (92.4%) obtained laboratory confirmation on 25 percent or fewer of cases, including 31 (33.7%) who reported that laboratory testing was not obtained on any patient, and 54 (58.7%) who reported obtaining laboratory confirmation on 1–25 percent. (See Table 2.) Some providers wrote comments on the survey indicating specific patterns of diagnostic testing, such as at the beginning of the season to confirm the presence of influenza.

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The predominant method of laboratory confirmation utilized was rapid assay, reported by 42 (45.7%) respondents. Viral cultures were obtained by 11 (12.8%) providers, and use of both tests was reported by 4 (4.3%). A total of 26 providers (28.3%) reported that no laboratory testing was ordered. The primary use of laboratory diagnostic testing was to confirm the diagnosis of influenza for specific anti-viral therapy, comprising 39.1 percent of the responses from those providers who utilized confirmatory testing.

Respondents were asked to indicate the proportion of their patients with “flu-like” viral respiratory illnesses who were treated with anti-viral drugs. Of the 92 respondents:

- 4 (4.3%) reported that none of their patients with influenza-like illness were given anti-viral drugs
- 38 (41.3%) reported that 1–20 percent of such patients were given anti-viral drugs
- 22 (23.9%) reported that 21–40 percent of such patients were given anti-viral drugs
- 10 (10.9%) reported that 41–60 percent of such patients were given anti-viral drugs
- 17 (18.5%) reported that >60 percent of such patients were given anti-viral drugs
- 1 (1.1%) did not respond to the question

To identify patterns in the use of specific anti-viral drug therapy for treatment of influenza, the survey included a fixed-choice item asking respondents to indicate whether drug therapy was not used, was used for treatment of influenza with laboratory confirmation, or was used for treatment without laboratory confirmation. Drug therapy for prophylaxis of influenza was not included, because utilization for this indication is less likely to affect the number of laboratory-confirmed cases reported, and because the newly released agents zanamivir (Relenza) and oseltamivir (Tamiflu) are not approved for influenza prophylaxis.

Table 3. Anti-Viral Drugs Most Often Prescribed for Viral Respiratory Illness (n=92), Greene County, Missouri, October 1, 1999–April 30, 2000

<u>Drug</u>	<u>Number of Responses</u>	<u>Percent of Responses</u>
Amantadine (Symmetrel)	15	16.3%
Rimantadine (Flumadine)	26	28.3%
Zanamivir (Relenza)	16	17.4%
Oseltamivir (Tamiflu)	25	27.2%
Multiple agents	4	4.3%
No response	6	6.5%

The majority of providers responding to the survey (63%) used anti-viral drugs for treatment of influenza without laboratory confirmation. Treatment of influenza with laboratory confirmation was reported by 14.1 percent, and ten respondents (10.9%) indicated that they prescribe anti-viral therapy both with and without lab confirmation. Nine providers (9.8%) indicated that they do not prescribe anti-viral agents for influenza.

The anti-viral drugs most often used during the 1999–2000 influenza season by providers who prescribed these agents were rimantadine (Flumadine) 28.3 percent and oseltamivir (Tamiflu) 27.2 percent. Amantadine (Symmetrel) was used by 16.3 percent, and zanamivir (Relenza) by 17.4 percent of prescribing providers. (See Table 3.) No differences were found in the utilization of the older agents amantadine and rimantadine (44.6%) as compared to the newly released zanamivir and oseltamivir (44.6%).

Results

Analysis of available data supports the conclusion that influenza activity in Greene County, Missouri during the 1999–2000 influenza season began and peaked early, with most activity occurring in a brief period of time from late December to early January. Factors that may have contributed to an increased number of laboratory-confirmed cases of influenza included publicity and public education campaigns which may have resulted in more patients seeking care in physicians’ offices and emergency

rooms, and the availability of new anti-viral drugs which may have led to increased diagnostic testing. It is noted that a small proportion of “flu-like” illnesses were laboratory-confirmed, with 92 percent of providers surveyed reporting laboratory testing of 25 percent or fewer of cases. Only one of the 171 laboratory-confirmed cases occurred after the third week in January, indicating that combined public and private health care systems’ efforts to educate the public on prevention was successful in reducing the number of influenza cases after the initial outbreak.

The true measure of the severity of any influenza season is related mortality. The severity of this influenza season in terms of pneumonia and influenza deaths was actually less than the five-year mean. This may be due in part to a greater number of high-risk individuals receiving influenza vaccine coupled with more physicians prescribing new anti-viral drugs. Based on the available data it appears that the 1999–2000 influenza season was not an extraordinarily severe season even though it was earlier than most years. This season was different, in that the majority of cases were seen during a three-week period shortly after the Christmas holiday. This may have given practitioners an impression that this was a severe season based on the number of cases observed during this short period of time. The unique nature of this season as described by the short, yet intense duration demonstrates the need for a community-wide effort to prepare for the possible debilitating effects of an influenza epidemic.

Appreciation is expressed to these individuals, who assisted in the development of the provider survey: Jim Blaine, M.D., Janie Vestal, M.D., Amy Slagle, M.D., and Kay Libbus, Dr.P.H., R.N.; and to the Greene County physicians and nursing homes who responded to the questionnaire.

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3. Bavley A. Flu mania strikes: People flock to doctors to get new medicines. *The Kansas City Star*, January 14, 2000:B1.
4. VandeWater J. Officials report widespread flu outbreak: Two new drugs can help with symptoms. *St. Louis Post-Dispatch*, January 6, 2000:B1.

Recommendations for Sub-Saharan African Immigrants/Refugees

(continued from page 1)

Preventable and Tuberculosis Disease Elimination at (573) 751-6122 or (800) 611-2912. If you have questions regarding HIV counseling and testing, please contact the MDOH's Section of STD/HIV/AIDS Prevention and Care Services at (573) 751-6439 or (800) 359-6259. For general questions regarding these recommendations, please call the Office of Epidemiology at (573) 751-6128.

A particularly good source for information on TB testing, diagnosis, and management is CDC's *Core Curriculum on Tuberculosis* (4th Edition, 2000), which is available at <http://www.cdc.gov/nchstp/tb/>.

Sexually Transmitted Diseases in Missouri: 1999

(continued from page 10)

362-1872, Email at std/hiv@im.wustl.edu, or visit their web site at: http://www.umsl.edu/services/itc/std_ptc.html.

Recommendations from CDC for the treatment and prevention of sexually transmitted diseases were updated in 1998 (CDC. 1998 Guidelines for Treatment of Sexually Transmitted Diseases, *MMWR* 1998;47[No. RR-1]). These guidelines are available at: http://www.cdc.gov/nchstp/dstd/1998_STD_Guidlines/1998_guidelines_for_the_treatment.htm. Additional recommendations relative to treatment of gonorrhea are contained in a recent *MMWR* article³, and are also included in the summary of gonorrhea treatment on page 11.

A number of links to STD-related web sites are available on the Missouri Department of Health Home Page at: <http://www.health.state.mo.us/GLRequest/ID/LinksSTD.html>.

REFERENCES:

1. CDC. *Some Facts About Chlamydia*.

http://www.cdc.gov/nchstp/dstd/Fact_Sheets/chlamydia_facts.htm

See also: CDC. 1998 Guidelines for treatment of sexually transmitted diseases. *MMWR* 1998;47(No. RR-1):53–59.

http://www.cdc.gov/nchstp/dstd/1998_STD_Guidlines/1998_guidelines_for_the_treatment.htm

2. CDC. *An Open Letter to Health Care Providers: Take Action on HEDIS*. http://www.cdc.gov/nchstp/dstd/Reports_Publications/HMOletter.pdf

HEDIS is a set of standardized performance measures designed to ensure that purchasers and consumers have the information they need to reliably compare the performance of managed health care plans. For more information, see the following web sites:

<http://www.cdc.gov/nchstp/dstd/HEDIS.htm>

<http://www.ncqa.org/Pages/Programs/HEDIS/index.htm>

3. CDC. Fluoroquinolone-resistance in *Neisseria gonorrhoeae*, Hawaii, 1999, and decreased susceptibility to azithromycin in *N. gonorrhoeae*, Missouri, 1999. *MMWR* 2000;49(37):833–7.

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4937a1.htm>

The Department of Health web site has recently undergone changes to make it more user friendly. Electronic copies of the *Missouri Epidemiologist* can now be found under "News," or you can directly access issues of this newsletter at <http://www.health.state.mo.us/MoEpi/MoEpi.html>.

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Alternate forms of this publication for persons with disabilities may be obtained by contacting the Missouri Department of Health, Office of Epidemiology, P.O. Box 570, Jefferson City, MO 65102-0570, Ph: (573) 751-6128. TDD users can access the preceding phone number by calling (800) 735-2966.

Centers for Disease Control and Prevention (CDC) Launches Internet Site in Spanish

CDC has launched its Spanish language web site, CDC En Español, on the World-Wide Web at <http://www.cdc.gov/spanish/>. It is also accessible from the left navigation side bar of the CDC home page.

CDC En Español is not a translation of the English language web site but is a site tailored to Hispanic/Latino populations. It provides health-related information to the Hispanic/Latino professional and to the Spanish-speaking community. The site also includes information directed at special groups, such as adolescents, students, teachers, patients, health-care providers, women, and men.

Included is information from CDC and Agency for Toxic Substances and Disease Registry (ATSDR) centers, institutes, and offices and appropriate links to other key federal agency web sites that are important to the Hispanic/Latino community. CDC En Español provides an opportunity for CDC/ATSDR and its national and international partners to access common information and discuss issues.

Questions related to CDC En Español can be sent by e-mail to spanish@cdc.gov.